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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,493	01/27/2004	David H. Stark	STRK-26,581	3487

  

25883	7590	12/17/2007
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EXAMINER	
KWIECINSKI, RYAN D	

  

ART UNIT	PAPER NUMBER
3635	

  

NOTIFICATION DATE	DELIVERY MODE
12/17/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@dalpat.com

## Office Action Summary

### Application No.

10/766,493

### Applicant(s)

STARK, DAVID H.

### Examiner

Ryan D. Kwiecinski

### Art Unit

3635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claim 18 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2,220,690 to Stupakoff.**

#### **Claim 18:**

Stupakoff discloses a hermetically sealed multi-pane window assembly comprising:

a spacer (2, Fig.1) having a continuous sidewall (bottom of the U-shaped frame member, Fig.2) circumscribing and thereby defining an aperture (hole in between panes, Fig.2) therethrough, the sidewall having an upper sealing surface (surface in contact with pane 3, Fig.2) and a lower sealing surface (surface in contact with pane 4, Fig.2);

the upper sealing surface being disposed on the upper side of the sidewall and continuously circumscribing the aperture;

the lower sealing surface being disposed on the lower side of the sidewall and continuously circumscribing the aperture;

a first and a second transparent windowpane sheets (3,4, Fig.2), the first sheet being disposed over at least a part of the upper sealing surface continuously around the aperture and the second sheet being disposed over at least a part of the lower sealing surface continuously around the aperture, thereby defining a cavity (hole between the panes, Fig.2) enclosed by the sidewall and the windowpane sheets; and

the first and second transparent windowpane sheets being each hermetically bonded to the spacer without non-hermetic adhesives to form a continuous hermetic joint around the aperture (Column 2, lines 28-30), the hermetic bonds between the first and second transparent windowpane sheets and the spacer each being diffusion bonds of the type obtained by pressing the windowpane sheet against the sealing surface of the spacer to produce an elevated pressure, heating the sealing surface of the spacer and the region of the windowpane sheet near the sealing surface to an elevated temperature, the elevated temperature being below the normal fusing temperatures of both the sheet and the spacer, and maintaining the elevated pressure and the elevated temperature for a period of time such that material from one of the windowpane sheet and the sealing surface of the spacer diffuses into the material to the other of the windowpane sheet and the spacer.

The recitations added to the claim regarding the process of forming the diffusion bonds are considered process limitations and do not add structure to the diffusion bonds. The end product is disclosed by Stupakoff.

**Claim 24:**

Stupakoff discloses a hermetically sealed multi-pane window assembly comprising:

n spacer(s) (2, Fig.2), where  $n \geq 1$ , each spacer having a continuous sidewall (bottom of the U-shaped frame member, Fig.2) circumscribing and thereby defining an aperture (hole in between panes, Fig.2) therethrough, having an upper sealing surface (surface in contact with pane 3, Fig.2) and a lower sealing surface (surface in contact with pane 4, Fig.2);

the upper sealing surface being disposed on the upper side of the sidewall and continuously circumscribing the aperture;

the lower sealing surface being disposed on the lower side of the sidewall and continuously circumscribing the aperture;

(n + 1) transparent windowpane sheets (3,4, Fig.2), the sheets being interleaved with the spacers such that one spacer lies between each consecutive sheet, the spacers being disposed to have at least a part of the upper sealing surface overlapping one of the adjacent sheets continuously around the aperture, and at least a part of the lower sealing surface overlapping the other adjacent sheet continuously around the aperture, thereby defining a plurality of cavities

(hole between the panes, Fig.2) enclosed by the sidewalls and the adjacent windowpane sheets; and

all of the transparent windowpane sheets being hermetically bonded to the adjacent spacers without non-hermetic adhesives to form continuous hermetic joints around each aperture (Column 2, lines 28-30), the hermetic bonds between the first and second transparent windowpane sheets and the space each being diffusion bonds of the type obtained by pressing the windowpane sheet against the sealing surface of the spacer to produce an elevated pressure, heating the sealing surface of the spacer and the region of the windowpane sheet near the sealing surface to an elevated temperature, the elevated temperature being below the normal fusing temperatures of both the sheet and the spacer, and maintaining the elevated pressure and the elevated temperature for a period of time such that material from one of the windowpane sheet and the sealing surface of the spacer diffuses into the material to the other of the windowpane sheet and the spacer.

The recitations added to the claim regarding the process of forming the diffusion bonds are considered process limitations and do not add structure to the diffusion bonds. The end product is disclosed by Stupakoff.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over by US 2,220,690 to Stupakoff in view of "Diffusion Bonding of Material" edited by N.F. Kazakov (Chapter 15 Nonmetals and Their Joining to Metals by Antonov and Bachin).**

**Claim 19:**

Stupakoff discloses a hermetically sealed multi-pane window assembly in accordance with claim 18, but does not disclose wherein the sealing surfaces of the spacer include a layer of artificially produced oxide overlying any natural oxide film.

Antonov et al. discloses a layer of artificially produced oxide overlying any natural oxide film.

The article discloses that the metal must be oxidized prior to bonding to ensure gas-tight seal (Page 254, lines 12-14). It also discloses putting the metals in vacuum chambers to further oxidize the surfaces of the metals (Page 253, last paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included an artificial layer of oxide film overlying the natural oxide of the metal surface if in fact this artificial layer will lead to a better,

more secure bond between the metal and the glass windowpane sheets of Stupakoff's glass panel.

**Claim 20:**

Stupakoff in view of Antonov et al. discloses a hermetically sealed multi-pane window assembly in accordance with claim 19, Stupakoff discloses further comprising:

an interlayer formed of a material different from the material of the spacer and the material of either windowpane sheet, the interlayer being disposed between the sealing surface of the spacer and at least one of the windowpane sheets prior to diffusion bonding and being incorporated into the hermetic joint after bonding (Column 2, lines 24-26).

**Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,014,466 to Winner in view of 2,220,690 to Stupakoff.**

**Claim 22:**

Winner discloses a window unit for installation in a building having a rough-in framing structure, the window unit comprising:

a unit frame (12,13,14,15, Fig.1) adapted for installation into the rough-in framing structure of a building during construction; and



at least one hermetically sealed multi-pane window assembly (Column 5, lines 55-61), the window assembly being mounted into the unit frame (Fig.1).

Winner does not disclose the multi-pane assembly in accordance with claim 18, but Stupakoff discloses the multi-pane assembly in accordance with claim 18 (See claim 18 rejection above). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have placed Stupakoff's glass and metal construction unit (Column 1, lines 1-5) into Winner's double hung window assembly in order to form a double hung window with glass panes that have been hermetically sealed without non-hermetic adhesives. The hermetic bond in Stupakoff's construction unit has a much stronger bond, as well as a greater resistance to temperature changes.

**Claim 23:**

Winner and Stupakoff disclose a window unit for installation in a building in accordance with claim 22, Winner discloses wherein the unit frame is a double-hung window unit (10, Fig.1 including:

an exterior frame/rail assembly (12,13,14,15, Fig.1); and

two window frames (17,20, Fig.1), each frame being independently slidably mounted to the frame/rail assembly (Column 1, lines 25-30) and carrying one hermetically sealed multi-pane window assembly therein (Column 5, lines 55-61).

***Response to Arguments***

Applicant's arguments filed 14 September 2007 have been fully considered but they are not persuasive.

The limitations added to the independent claims are considered process limitations, and they do not add structural limitations to the overall hermetically sealed multi-pane window assembly.

In regards to claim 19, an additional non-patent literature source has been used to show the oxide layers in the multi-pane window assemblies.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Kwiecinski whose telephone number is (571)272-5160. The examiner can normally be reached on Monday - Friday from 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Canfield can be reached on (571)272-6840. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



RDK

Robert Canfield  
Primary Examiner

